IS IT WORTH IT TO STAND?

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DISCLAIMER

• No disclosure necessary

OBJECTIVES

At the end of this presentation, attendees will:
• Identify patient characteristics that indicate lower extremity weight bearing as a therapeutic intervention.
• Describe key benefits and applications of static lower extremity weight bearing.
• Describe key benefits and applications of dynamic lower extremity weight bearing.
GILLETTE LIFETIME
Services for teens and adults who have disabilities and complex conditions that began during childhood.

SEDENTARY BEHAVIOR AND CARDIOVASCULAR HEALTH

- Standing is a hot topic
- Research on the general population
  - Morbidity
  - Mortality
    - (Katzmarzyk, 2009; Owen, 2010)
- Current recommendations
  - Move more

PROLONGED SITTING GENERAL POPULATION

Cardiovascular
Respiratory
Gastrointestinal
Integumentary
Musculoskeletal

http://img3.huntercancer.org/cancer/cancer_handout.png (with modifications)
CP: PRESENTATION

• Obvious
  • Spasticity, strength, range of motion, mobility

• Not-So-Obvious
  • Pain, BMD, B & B, skin breakdown, overuse

• Things we don’t think about enough
  • Pregnancy, sensation, physical activity, social engagement, independence

PROLONGED SITTING
DISABILITY POPULATION

TOGETHER
LIFESPAN ISSUES WITH CEREBRAL PALSY

- Mobility
  - 75% of ambulatory individuals stop walking by age 25 (fatigue, inefficiency)
  - Another trend for decreased ambulation at age 45 (pain)
- Pain
  - 67% - 84% of surveyed patients
  - "Orthopedic" treatment needed
- Independence
- Psych
  - Depression
  - Low self esteem
  - Social isolation
Source: (Gaydosik, 2001)
LIFESPAN ISSUES WITH CEREBRAL PALSY

- Jones, 2009 Reflections:
  - Societal barriers
  - Fatigue, “Sea of Pain”
  - Osteoporosis, arthritis
  - Side effects of medications

PHYSICAL ACTIVITY: DESCRIPTION

- Ryan, 2014
  - Less PA than non-disabled peers, More time in sedentary activity
  - Less time in light, moderate, and vigorous physical activity
  - >75% not meeting ACSM guidelines
  - More likely to accumulate MVPA in everyday activities

PHYSICAL ACTIVITY: BARRIERS

- Maltais, 2010
  - Inability to walk
  - Ambulators: age, positive perception of health; increase in severity of secondary condition
  - Non-ambulators: perception of ROM limitations

- Buffart, 2009
  - Physical – injury, energy, lack of perceived benefit
  - Psychological – self-conscious, motivation, time, priorities, effort
  - Social Environment – lack of professional support
  - Physical Environment – transportation, adapted facilities, expense, knowledge gaps
EVIDENCE

• Stretching is not effective
  • Children with CP (Novak 2013)
  • Adults with Neurologic conditions (Katalinic 2011)

• Benefits of standing (Decianno, 2013)
  • ROM/Contractures
  • Bowel/Bladder
  • Bone Health (Yoon, 2012)
  • Cardiovascular
  • Tone
  • Pressure Relief
  • Quality Of Life
  • Independence

WHO SHOULD BE STANDING?

• Patients who don’t walk for mobility, especially
  • Contractures
  • Weakness
  • Postural abnormality – provide another position close to neutral
  • Pressure sores
  • Hypotension

• Contraindications to standing
  • Temporary – open wounds, recent LE fracture
  • Permanent – contractures and deformity that cannot be accommodated; hips; osteoporosis with spontaneous fractures; tolerance

OUR DEFINITIONS

• Static = no stepping
• Dynamic = stepping
OPTIONS FOR STATIC STANDING

- **Standing Frames**
  - Prime Engineering Super Stand
  - EasyStand Evolv and Bantam
  - Rifton Supine Stander
  - Ormesa Standy

- **Manual chairs with standing features**
  - Levo LCEN and LAB
  - Helium

- **Power chairs with standing features**
  - Levo C3 and Combi
  - Invacare chairs with Motion Concepts system
  - Permobil F5

STATIC STANDING

- **Benefits**
  - Management of
    - Contractures
    - Atrophy
    - Spasms
    - Bone integrity
    - Scoliosis
    - Pressure/skin integrity
    - Bowel and bladder function
    - Cardiovascular system
    - Circulation/swelling

STATIC STANDING FRAMES

- **Benefits**
  - Most cost effective
  - Adjustability
  - Familiar
  - Tray position
  - Multiple users
  - Lower complexity
  - Durable

- **Barriers**
  - Transfers
  - Independence
  - Stationary
  - Stand transition options
  - Space
STATIC STANDING: MANUAL WHEELCHAIR WITH STANDING FEATURE

- **Benefits**
  - Independence
  - Environmental access

- **Barriers**
  - Chair weight
  - Positioning
  - Contractures

STATIC STANDING: POWER WHEELCHAIR WITH STANDING FEATURE

- **Benefits**
  - Independence
  - Programming capability
  - Environment access
  - Increased standing time

- **Barriers**
  - Cost / coverage
  - Complexity
  - Ease of adjustment
  - Limited to PWC users

OPTIONS FOR DYNAMIC STANDING

- **Gait Trainers**
  - Rifton Pacer – two frame options
  - R82 Mustang
  - R82 Crocodile
  - Ormesa Dynamico
  - Pacific Rehab Meywalk

- **Other**
  - Rifton TRAM
WORTH IT TO DO BOTH?

- End range contractures of hips, knees, ankles
- Crouch gait
- Poor posture

CASE STUDY FORMAT

- Age, Gender, surgical history (brief), mobility, changes in function, secondary conditions (pressure ulcers, bowel & bladder, pain, fatigue, BMD, breathing), social history, standing history
- Benefits of standing
- Barriers
- Look at all domains of ICF

STATIC STANDING: STANDING FRAME

- Case study – will be filled in for presentation
STATIC STANDING: POWER WHEELCHAIR WITH STANDING FEATURE

- Case study – will be filled in for presentation

OPTIONS FOR DYNAMIC STANDING

- Gait Trainers
  - Rifton Pacer – new dynamic
  - R82 Mustang
  - Rifton TRAM
  - Meywalk
- Other
  - R82 Crocodile

DYNAMIC STANDING: GAIT TRAINER

- Case study – will be filled in for presentation
DYNAMIC STANDING: TRAM

- Case study – will be filled in for presentation

TRENDS IN FUNDING

- Medicare: no
- Medicaid: yes
  - Home Health portion
- Third Party: varies

FUNDING TIPS

- FIM scores
- Outcome measures

  - Website assistance
    - [http://www.permobius.com/funding.php](http://www.permobius.com/funding.php) (includes RESNA position paper)
  - [http://www.rifton.com/resources](http://www.rifton.com/resources)
REFERENCES


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BACK-UP CASE STUDIES

- Standing PWC
- Standing Frame
- Gait Trainer
- TRAM

- Case studies will be added in for the presentation